Migraine and Use of Progestin-Only Contraception

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Abstract: Progestin-only contraception (POC) is not associated with an increased risk for cardiovascular events. In contrast to combined hormonal contraceptives, POC does not increase frequency of migraine attacks and does not initiate migraine. The continuous use of this contraceptive might contribute to the good tolerability in migraineurs. Only for the progestin-only pill with desogestrel 75 g has it been demonstrated in several studies that it exerts significant reduction in migraine days and migraine intensity. This observation was made for migraine with and without aura. The LNG_IUS 20 is not well tolerated by many migraineurs, potentially as a result of highly fluctuating estrogen levels caused from ovarian cysts.

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Pharmacology of progestins

Progestin –only methods available in most European countries, mechanism of action and hormone-fluctuations during their use.

Continuous daily pill with desogestrel 75µg (POP)

Implant releasing etonogestrel

3-monthly injection with Depo-Medroxyprogestreone acetate (DMPA)

Intrauterine system with release of levonorgestrel (LNG-IUS)

Pharmacology of progestins

Progestins are synthetically synthesized steroid hormones used in contraception and menopausal hormone-replacement therapy. They differ in their pharmacologic properties and from progesterone, which is released from the ovaries and the corpus luteum after ovulation and is essential for maintenance of pregnancy and for the transformation of the endometrium. Recent studies indicate that progesterone has a protective effect after traumatic brain injury and stroke and improve neuroregeneration and myelin repair [1-4]. Progesterone and progestins typically act through binding to progesterone receptors, which have been. Most progestins can bind to other steroid receptors like androgen receptor or estrogen receptors and exert agonistic or antagonistic actions. Insofar the pharmacologic profile of progestins differ. It has been demonsrated that progestins can antagonise estrogen actions in the reproductive tissues, the brain and in cultured nerve cells by lowering oestrogen receptor expression [5-7]. Such a mechanism could be involved in the later discussed effects of desogestrel on migraine.

Progestin-only contraceptives (POCs)

To achieve a high efficacy hormonal contraception aims typically on inhibition of ovulation. As estrogens induce proliferation of the endometrium combined hormonal contraceptives are used with a break to allow scheduled withdrawal bleeding. In predisposed women the hormone-withdrawal during this break can initiate a menstrual migraine.

Most modern progestins can inhibit ovulation, insofar adding estrogen to a contraceptive is no more necessary, neither breaks to induce bleeding (Figure 1). The continuous daily use of POCs results in in comparison to the natural cycle or CHC more stable hormone levels, what might improve tolerability for women suffering from migraine. Another advantage is that in

contrast to estrogens, progestins do not increase the risk for venous-thromboembolism (VTE) or stroke. A disadvantage of progestin-only contraceptives (POCs) is the unpredictable bleeding pattern, ranging from amenorrhoea to prolonged spottings. Bleedings are typically light, but uncomfortable for a subset of users. Intrauterine system with release of levonorgestrel do not typically inhibit ovulation and ovarian function is less suppressed. This implies less stable hormone levels, even if the local levonorgestrel release into the uterine cavum might

Progestin –only methods available in most European countries, mechanism of action and hormone-fluctuations during their use.

1. Continuous daily pill with desogestrel 75µg (POP)
2. Implant releasing etonogestrel
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1. Continuous daily pill with desogestrel 75µg (POP)

This POP inhibits ovulation and has to be used continuously. The Pearl-Index (number of pregnancies in 100 women using this method for a year) is like with CHC 0.3-0.6 with correct use. As ovulation is inhibited and as there is no hormone-withdrawal this contraceptive seemed to be a good alternative to CHC in women with migraine. The low dosage allows a basic estradiol level production in the ovaries. Several studies have shown a positive effect of this contraceptive on migraine with and without aura.

2. Implant releasing etonogestrel

Implanon is a non-biodegradable, long-acting, progestagen-only contraceptive implant inserted subdermally.

3. Implant releasing etonogestrel

This implant is inserted sub

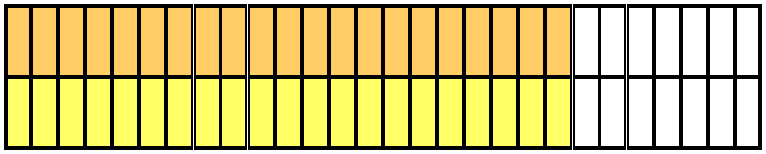
4.

Evidence for effects of POC on migraines

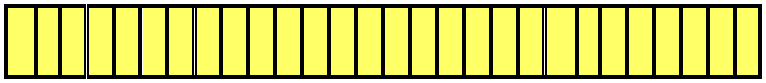
Figure

Typical use of combined hormonal contraceptives (CHC) and progestin-only contraceptives

Days 1-28



Gestagenpräparate



Estrogen	Progestin	No hormone

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